

Kindly add new claims 16-23 as follows:

16. A flow rate sensor for detecting a flow rate of a fluid, said flow rate sensor comprising:

- a sensor tube operable to allow a fluid to flow therein;
- a sensor tube guide adapted to cover said sensor tube and contact said sensor tube;
- a plurality of narrow inner tubes provided within said sensor tube;
- a pair of heating resistors operable to heat said sensor tube, said pair of heating resistors provided on said sensor tube guide;
- a temperature sensor operable to control temperatures of said pair of heating resistors, said temperature sensor being positioned equidistant from opposite ends of said sensor tube;
- a case adapted to hold said pair of heating resistors and said temperature sensor; and
- a voltage applying device operable to set an increase in temperature of each of said pair of heating resistors;

wherein said sensor tube has opposite ends thereof thermally connected to said case;

and

wherein said flow rate sensor is adapted to detect a flow rate of the fluid flowing in said sensor tube based on variations of voltages applied to said pair of heating resistors, the variations occurring according to the flow rate of the fluid.

17. A flow rate sensor as claimed in claim 16, wherein the increase in temperature of each of said pair of heating resistors is 5°C or less than a temperature of said temperature sensor.

18. A flow rate sensor as claimed in claim 16, wherein said sensor tube has a U-shaped configuration.

19. A flow rate sensor as claimed in claim 16, wherein said sensor tube guide is made of a material having a high heat conductivity.

6 20. A flow rate sensor as claimed in claim 16, wherein said sensor tube guide encloses the sensor tube and is removably provided in said case.

7 21. A flow rate sensor as claimed in claim 16, wherein said pair of heating resistors comprise metallic thin films.

8 22. A flow rate sensor as claimed in claim 16, wherein said case comprises an upper case and a lower case, wherein said upper case and said lower case are fixedly connected to each other via screws.

4 23. A flow rate sensor as claimed in claim 18, wherein said tube guide comprises an upper case and a lower case, each of said upper and said lower cases having a U-shaped groove for containing the U-shaped sensor tube, and said upper and said lower cases being connected together via screws.--

IN THE ABSTRACT:

Please replace the abstract with the attached substitute abstract.